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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/073,931
Filing Date: February 14, 2002
Appellant(s): DOSHI ET AL.

John E. Curtin, Reg. No. 37,602
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed June 25, 2007 appealing from the Office action mailed January 25, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves claims 1-15.

Claims 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Please note the withdrawal of the 35 U.S.C. 112, second paragraph rejection below (Section (6)).

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

(a) Grounds of Rejection WITHDRAWN:

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner:

The rejection of claims 16-18 based on 35 U.S.C. 112, second paragraph has been withdrawn.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

U.S. PATENT(S)	NAME/INVENTOR(S)	ISSUE DATE
5,726,788	Fee et al	3-1998
6,331,906 B1	Sharma et al	12-2001

6,624,927 B1

Wong et al

9-2003

(9) Grounds of Rejection

Claim Rejections - 35 USC § 112

1. The Appellants' arguments, see page 3, section VII, paragraph A, filed 6-25-07, with respect to claims 16-18 under 35 U.S.C. 112, second paragraph, have been fully considered and are persuasive. The rejection of claims 16-18 has been withdrawn.

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4-6, 9-11, 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Fee et al (U.S. patent 5,726,788).

Fee et al disclose the claimed invention of a connection device or router comprising one or more processing units (f1-f7) and an optical switch (308). Fee et al's optical switch is capable of receiving or receives Ultra Long Haul (URL) optical signals

and is capable of connecting or is connected to at least one of the units to one or more of the received signals, based on a characteristic of each signal. Please note in column 1, lines 29-31 and lines 49-61; also column 2, lines 36-37 and lines 44-50.

With respect to claims 4, 5, 9, 10, 14 and 15, please note for example, Figures 3 and 7, and their accompanying text, especially at column 4, line 46 to column 5, line 10, as well as column 5, line 64 to column 6, line 28. Specifically with respect to claims 4, 9 and 14, note for example at column 4, lines 53-55. Clearly Fee et al disclose the dispersion equalization/compensation unit. Fee et al disclose the claimed elements in their non-exclusive representation list of optical modules or "processing units" for processing the information carrying optical signal.

Specifically with respect to claims 5, 10 and 15, please note for example at column 5, line 64 to column 6, line 28, as well as Figure 3, element 314. Clearly Fee et al disclose the performance monitor. Fee et al disclose the controller and a network control center wherein these elements monitor the performance for optimum functioning.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2, 7, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fee et al (U.S. patent 5,726,788) in view of Wong et al (U.S. patent 6,624,927 B1).

Fee et al disclose the claimed invention as described above, except for explicitly including various specific processing units, such as a Raman pump. However, Fee et al does teach the use of an amplifier (col. 4, lines 49-50) and/or pump insertion (col. 4, lines 58-59) as processing units, as part of a non-exclusive representative list of optical modules for processing information carrying optical signal(s) (col. 4, lines 46-48). Wong et al teaches that it is well known to utilize a Raman pump for the purpose of amplifying optical signals in an optical communications network, so that the power of the signals is maintained at a constant level, thereby avoiding signal degradation due to lost signal power. Wong et al further teaches that various Raman pumping arrangements may be used to pump any suitable optical fiber communications system, such as fiber in optical network equipment including add/drop modules or optical switches. (Wong et al at col. 3, lines 49-59). Therefore, it would have been well known to one of ordinary skill in the art to utilize the well known Raman pump of Wong et al for the purpose of amplifying optical signals and/or pump insertion, thereby providing necessary signal processing functions as taught by Fee et al. Please especially note Fee et al at column 2, line 33 to column 3, line 16; as well as column 4, line 40 to column 5, line 10.

4. Claims 3, 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fee et al (U.S. patent 5,726,788) in view of Sharma et al (6,331,906 B1).

Fee et al disclose the claimed invention as described above, except for explicitly including various specific processing units, such as an optical-electrical-optical regenerator. However, Fee et al does teach the use of a modulation reshaper and the need for a regenerating process operation (note col. 4, lines 5-17), as part of necessary signal processing functions. Sharma et al teaches that it is well known to utilize an optical-electrical-optical regenerator for the purpose of reshaping optical signals in an optical communications network through techniques for restoration of network services in the event of a failed fiber link (e.g. a break in a fiber or a failure of an active element such as a fiber amplifier) and the use of optical switching to effect such restoration (note Sharma et al at col. 1, lines 53-58). Therefore, it would have been well known to one of ordinary skill in the art to utilize the well known optical-electrical-optical regenerator of Sharma et al for the purpose of reshaping optical signals and affecting signal restoration, thereby providing necessary signal processing functions as taught by Fee et al. Please especially note Fee et al at column 2, line 33 to column 3, line 16; as well as column 4, line 40 to column 5, line 10.

(10) Response to Argument

Appellants' arguments filed in the Appeal Brief on June 25, 2007 have been fully considered but they are not well received.

(A) With respect to the 112(2) rejection:

This rejection has been withdrawn as noted previously, as the Appellants' arguments were considered persuasive. Therefore, the rejection under 35 U.S.C. 112, second paragraph is moot.

(B) With respect to the 102 rejection:

The Appellants' arguments that the prior art to Fee et al fails to teach or suggest a connection device that comprises an optical that receives ULR optical signals and connects at least one non-dedicated processing unit to one or more of the received signals based on the characteristic of each signal, as recited in claims 6 and 11 (with their respective dependent claims). The Examiner disagrees.

It is first noted that the recitation regarding the claimed limitation of the "URL optical signals" is part of a functional recitation and is narrative in form. A functional recitation must be expressed as a "means" for performing the specified function, as set forth in 35 USC § 112, 6th paragraph, and must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. In re Fuller, 1929 C.D. 172; 388 O.G. 279. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).

However, even if the recitation directed to the URL optical signals had sufficient structure to support it, Fee et al teach and/or suggest the claimed limitations of the URL optical signals, as noted below.

The Appellants teach in their specification as noted in paragraph [0002] on page 1, that:

[0002] Today, when voice, data or video communication signals are transmitted from one location to another the chances are high that such communications will be sent via an optical fiber network. So-called "ultra, long-reach" ("ULR") optical fiber networks are in the planning stages or just being built. ULR networks are characterized by their ability to transmit signals extremely long distances without the need to process the signals other than simple amplification.

[It is noted by the Examiner that the Appellants have used the label "URL" to describe the optical fiber network, not the actual optical signals. Other passages within the Appellants' "Background of the Invention" refer to "URL link" and "URL network(s)." No other passages of the originally filed disclosure recite the term "URL." It has been interpreted by the Examiner that the Appellants mean for the optical signals that travel within the URL optical fiber network or link.]

As noted from the excerpt of the Appellants' specification, ULR optical fiber networks at the time of their invention were in the planning stages or just being built. Since Fee et al's invention predates the Appellants' claimed invention, Fee et al would probably not use the same terms as the Appellants. However, Fee et al teach ULR in their functioning descriptions, which the Appellants' support from their specification. It's noted

from the above passage from the Appellants' specification that the chances are high that such communications, such as voice communication signals, will be sent via an optical fiber network. Fee et al disclose and teach the communications system routes data to effectively interconnect data equipment located at a distance from one another (col. 1, lines 28-30), wherein that the data may be multi-gigabit-per-second data represented by many telephone voice signals. By the Appellants' own admission, voice communication signals are likely to be transmitted via URL optical fiber networks or data equipment located at a distance from each other. From Fee et al's disclosure in light of the Appellants' own admission, Fee et al teach and/or suggest the claimed limitations directed to the URL optical signals.

The Appellants' arguments that the prior art to Fee et al does not teach or suggest a connection device that comprises an optical switch receiving ULR optical signals is not well received by the Examiner, as noted above, and in addition to the following. The Appellants believe that Fee et al is not directed towards ULR optical signals because it repeatedly discloses the need for amplification of an optical signal and that it is a characteristic of ULR signals that amplification is not always required. Yet in their specification on page 1, paragraph [0002], the Appellants explicitly describe ULR networks are characterized by their ability to transmit signals extremely long distances without the need to process the signals other than simple amplification. It is this simple amplification that Fee et al utilizes. Fee et al's claimed invention would appear to be working within a URL, because it addresses the need for keeping the signal strong, which is taught by the Appellants as indicated above as a characteristic of a URL.

Please also note, for example, the network indications in Fee et al at column 1, lines 49-61 and column 2, lines 10-12.

In response to Appellants' argument that Fee et al is not directed to URL optical signals or networks, the law of anticipation requires that a distinction be made between the invention described or taught and the invention claimed. It does not require that the reference "teach" what the subject patent teaches. Assuming that a reference is properly "prior art," it is only necessary that the claims under consideration "read on" something disclosed in the reference, i.e., all limitations of the claim are found in the reference, or "fully met" by it. Fee et al begins their patent specification with the "Field of Invention," (col. 1) which clearly and explicitly discloses that their invention relates to an optical telecommunications network, and reiterates this teaching throughout their specification. Again, the fact that Fee et al do not specifically label their optical signals as "URL" does not mean they are not taught. One of ordinary skill in the art, let alone one of skill, would know from reading Fee et al that their optical signals are URL, and therefore Fee et al reads on the limitation of the claim. A brief reminder that the claim limitation to the "URL optical signals" is part of the functional recitation in the independent claims 1, 6 and 11, as noted previously.

With respect to Fee et al not teaching or suggesting the "non-dedicated" processing units," this too is not well received. Fee et al has one or more "non-dedicated" processing units as explicitly described in column 5, lines 56-67, wherein the optical signal can be routed to any one of the functions or "processing units," either to one function or sequentially to multiple functions. Fee et al describes functions that

operate in the same manner as the Appellants' invention, wherein intelligence and flexibility to the processing operations are performed upon the optical signal. Note column 8, lines 20-34. Therefore, Fee et al teach the "processing units" are "non-dedicated" and receive any of a number of optical signals. Please additional note for example at column 2, lines 44-50, wherein "any optical signal in a telecommunications network" is disclosed. With respect to Fee et al utilizing multiple switches in a cascading manner, Fee et al create an optical shuffle network in order to pass any optical signal through the chosen processing units.

In response to the Appellants' argument that Fee et al does not disclose "non-dedicated" processing units as being not dedicated to a single link, this is not well received by the Examiner. It is noted that the independent claims, claims 1, 6 and 11, recite in their functional language that the units may be connected to "one or more" of the received signals. The language does not prohibit the prior art from reading on a single link, because "one or more" includes a single link. However, Fee et al has been interpreted by the Examiner as having "non-dedicated" processing units because the Figures of Fee et al and the specification are an example of their invention, wherein for understanding purposes only, a single link has been described. Please note in Fee et al at column 3, lines 59-60, which states "To facilitate the understanding of the present invention,..." and at column 5, lines 53-54, which states, "Returning to the description of Fig. 3, as merely an example,...". To further support this interpretation, Fee et al's Figure 1 depicts multiple links (i.e. such as 120 and 121) for each of the nodes (101-105), wherein the connection device is utilized at the nodes of the telecommunications

network. A telecommunications network not having multiple links connected to the intervening nodes would be a very restricted and slow network, which is contrary to the teaching of Fee et al meeting the need of the art to provide an agile, all optical, flexible network. Therefore, the Examiner has interpreted the claims consistent with the Appellants' specification, while still utilizing the broadest interpretation of the claims.

(C) With respect to the 103 rejections:

In response to the Appellants' arguments, with respect to claims 2, 7 and 12, that there is no suggestion to combine the references as Fee et al in view of Wong et al, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Fee et al disclose in their non-exclusive representative list of processing units (not an exhaustive list), the inclusion of a "Pump Insertion" (col. 4, line 58). Since the representative list clearly states the use of a pump, and does not disavow the specific use of a Raman Pump, one of ordinary skill in the art would have known that the Wong et al Raman pump may be combined with Fee et al's invention, in order to improve the noise figure of the network. Wong et al clearly disclose that their Raman pump may be incorporated into other equipment such as optical switches (col. 2, line 66 to col. 3, line 6) of

telecommunications networks. Please also note Wong et al at column 3, lines 49-59.

Therefore, for the reasons given previously that Fee et al discloses the claimed invention with respect to independent claims 1, 6 and 11, Fee et al in view of Wong teach the use of a "non-dedicated" Raman pump, thereby reading on Appellants' claimed invention of claims 2, 7 and 12.

In response to Appellants' argument, with respect to claims 3, 8 and 13, that there is no suggestion to combine the references as Fee et al in view of Sharma et al, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Fee et al do not disavow the use of an optical-to-electrical-to-optical converter. Fee et al do teach that regeneration may be a selected signal processing operation upon the optical signal (as noted for example at col. 8, lines 20-21), and therefore a regeneration processing unit or module would obviously be required. Sharma et al teach such a regenerating processing unit for an optical communication network system, wherein such unit is an optical-to-electrical-to-optical regenerator. Since Fee et al teach that various module examples that provide various processing operations may be used, (clearly taught in column 4, line 46 to column 5, line 10), and that one of the processing operations includes "modulation reshaping," and Sharma et al teach that an exemplary way to provide modulation

reshaping is to use an optical-to-electrical-to-optical converter or regenerator (note Sharma et al at col. 5, lines 43-52), it would have been obvious to one of ordinary skill in the art to use the converter or regenerator of Sharma et al in the invention of Fee et al. It is well established in the optical network art that when a signal is converted to an electrical signal, there is more control and flexibility offered. Hence, for the purpose of processing a signal as explained previously, utilizing what is taught by Sharma et al in Fee et al's invention would have been obvious to one of ordinary skill in the art. Please note in the Background of the Invention in Fee et al at col. 2, lines 18-25.


As for Fee et al stating that there is no conversion of an optical signal to an electrical signal and back to an optical signal, Fee et al is referring to the unnecessary step of conversion in order to process the optical signals, in the same manner as the Appellants' invention. The Appellants' invention does not require such a conversion in order to process the optical signals either, and yet an optical-to-electrical-to-optical converter is utilized as a processing unit plugged into the optical switch. Fee et al's invention operates, functions and is configured the same as the Appellants' invention (as described previously). Therefore, the combination of Fee et al's invention with the teaching of Sharma et al's invention would have been obvious to one of ordinary skill in the art and would not render Fee et al's invention unsatisfactory for its intended purposes.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,


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